



Europäisches Patentamt

(19)

European Patent Office

Office européen des brevets



(11) Publication number:

0 512 150 A3

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 91111219.1

(51) Int. Cl. 5: G06K 15/12

(22) Date of filing: 05.07.91

(30) Priority: 08.05.91 US 697092

(43) Date of publication of application:
11.11.92 Bulletin 92/46

(84) Designated Contracting States:
DE

(88) Date of deferred publication of the search report:
04.08.93 Bulletin 93/31

(71) Applicant: ACER INCORPORATED
7 Hsin-An Road
Hsin Chu Science-Based Industrial Park(TW)

(72) Inventor: Barnstead, George W.

71 Stillhouse Road
English Town, New Jersey 07726(US)

Inventor: O'Neil, John T.
124 Heather Lane
Princeton, New Jersey 08540(UA)

(74) Representative: Liesegang, Roland, Dr.-Ing. et
al

FORRESTER & BOEHMERT
Franz-Joseph-Strasse 38
W-8000 München 40 (DE)

(54) Apparatus and method for gray and edge enhancement.

(57) An apparatus and method for improving the printing and edge enhancement of laser printers comprises a video clock counter, an input selector, a calibration selector, a mode selector, a decoding array, a register, memory and an address counter. The gray and edge enhancement circuit modifies the data received from the laser print controller to smooth edges in the image sent to the laser. The present invention compares each pixel and sur-

rounding pixels in an area seven pixels wide and seven pixels long to correction bit patterns. If a match is found the pixels are modified to enhance any edges defined by the pixels. The gray and edge enhancement circuit also includes an operating mode in which shades of gray may be printed with a resolution of 150 dpi. The circuit uses the decoding array to pulse width modify the input data to various shades of gray.

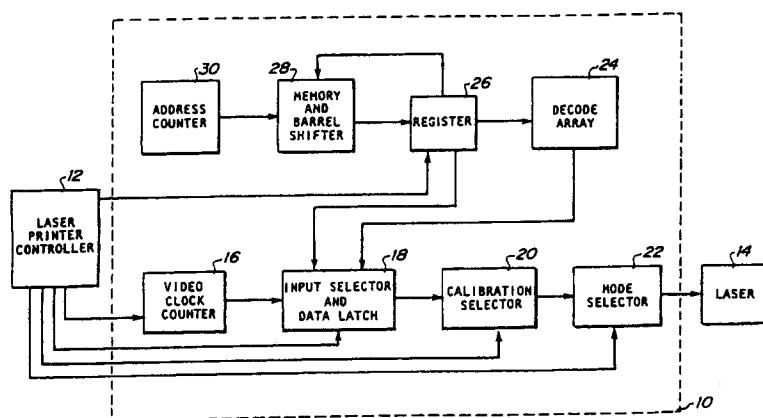


Figure 1



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 11 1219

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) |
|--|---|---|---|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | G06K15/12 |
| X | US-A-4 963 989 (MORTON) 16 October 1990 | 1-3,11, 12 | G06K15/12 |
| Y | * column 2, line 14 - line 30 * * column 6, line 31 - line 55 * * column 8, line 44 - column 10, line 33 * * figure 5.7.8 * | 9 | |
| X | US-A-4 951 159 (VAN BEEK) 21 August 1990 * the whole document * | 1,11 | |
| X | EP-A-0 356 038 (HEWLETT-PACKARD COMPANY) 28 February 1990 | 4-8,10 | |
| Y | * column 1, line 4 - column 4, line 40 * * column 9, line 45 - column 25, line 39 * * figures 2,4,5 * * figures 6A,6B,9-11 * | 9 | |
| X | EP-A-0 388 833 (HITACHI, LTD.) 26 September 1990 * abstract * * figures 1,6 * | 4,10 | |
| A | DE-A-3 618 032 (KABUSHIKI KAISHA TOSHIBA) 8 January 1987 * page 7, line 14 - page 8, line 61 * * figures 6-12 * | 1,11 | G06K |
| A | EP-A-0 213 949 (CANON KABUSHIKI KAISHA) 11 March 1987 * page 1, line 11 - page 5, line 51 * * figures 1-3 * | 1,11 | |
| The present search report has been drawn up for all claims | | | |
| Place of search | | Date of completion of the search | Examiner |
| THE HAGUE | | 19 MAY 1993 | GOOSSENS A.M.J. |
| CATEGORY OF CITED DOCUMENTS | | T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | |
| X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document | | | |